EXPLORING THE DECISION LANDSCAPE: INTEGRATION AND DISPLAY OF ECOSYSTEM SERVICES & INDICATORS USING THE DRIVER-PRESSURE-STATE-IMPACT-RESPONSE FRAMEWORK AND DYNAMIC WEB APPLICATION

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Making decisions to increase community or regional sustainability requires a comprehensive understanding of the linkages between environmental, social, and economic systems. We present a visualization tool that can improve decision processes by enhancing understanding of system contexts and access to pivotal information resources. This allows users to better analyze decision options and tradeoffs.

Stakeholders can use the tool to accomplish their sustainability goals by: Understanding interactions and feedback loops within human-environmental systems; Identifying areas of the system not previously considered and avoiding unintended consequences; Identifying metrics, indicators, and datasets to aid in assessing problems, evaluating options, and measuring performance or progress, and; Identifying pertinent objectives, goals, and corresponding management options. The tool is simple to use and intended for anyone who can benefit from a comprehensive understanding of human-environmental systems, including planners, natural resource managers, policy makers, investigative journalists, scientists, modelers, and many more.

The structure of the tool is based on the Driver-Pressure-State-Impact-Response (DPSIR) framework and is drawn from peer reviewed literature, ecosystem services (ES) compilations, indicators compilations, community-based management plans, and community partners. Within the DPSIR framework, Socio-economic *Drivers* exert *Pressures* on the *State* of natural and human systems. This State *Impacts* human well being directly, or via ecosystem services. *Impact* on human well being triggers *Responses*, which can target any area of the system in order to realize more sustainable outcomes.

Ecosystem services are an integral part of the tool's underlying framework, making the role of ES within human-natural systems explicit. This integration enables a comprehensive and detailed exploration of the natural processes and attributes that contribute to ES as well as the ways that ES benefit humans and support natural systems. Finally, the integration of ES into a comprehensive systems visualization tool lays the conceptual groundwork for ES-based measurement, indicator selection, valuation, modeling, collaborative decision making, and environmental/land use planning.